AUTOMATED CUSTOMER INTERFACE FOR SERVICES INVOLVING DROP-OFF AND PICKUP

BACKGROUND OF THE INVENTION

The invention relates to automated customer interface in the provision of retail services, and more particularly to a method and system for providing services such as laundry/dry cleaning services, photoprocessing services, shoe shine and repair services, video rental and similar services using a network of attendant-free kiosk-like automated machine facilities at which a customer drops off an order and later picks up the processed order ordinarily without the necessity of any human interface. The invention relates to the use of a customer's general purpose, undedicated charge card for identifying the customer's order and for automatic billing of the customer for services.

Laundry and cleaning drop-off and pickup facilities having some degree of automated operation have been known prior to the present invention. For example, automated drop-off and pickup facilities (sometimes attended and sometimes unattended) principally for limited associated groups as in uniform cleaning services in hospitals for use with dedicated cards or "club cards" held by members of the limited group, are described in a series of British patents: Nos. 1,107,988; 1,316,453; 1,317,306; 1,423,135; 1,604,040; and 2,080,264.

The above-listed patents disclose a mechanical garment retrieval system or "gantry" system which can be used in the system of the present invention. The patents also disclose the use of a computer, connected to a keyboard, display and printer, as well as to a card reader and a control for the mechanical retrieval and door-operating functions of the system, but the use of the computer is extremely limited. Array lookup is utilized in conjunction with the card or token reader to locate a storage position with a customer's processed order, or to find an available storage position for a new order, and the present invention can employ something similar to this as one limited aspect of customer order handling.

The British patents disclose systems only for use with dedicated or "club" cards held by members of a closed, limited group—tokens or punched cards, for example, can be used to represent the customer and sometimes an account balance. Unlike the present invention, the systems disclosed in the British patents do not permit the use of a general purpose, undedicated charge card such as MasterCard or Visa for identifying a customer and for triggering the taking of an order or the completion of an order by automatic delivery of serviced goods to the customer. Thus, the systems of the British patents cannot be used for general retail services for handling the order of any customer approaching an automated machine facility, previously unknown to the system.

Further, the systems of the British patents do not disclose interactive customer interface with the order processing system. A keyboard disclosed in British Patent No. 2,080,264 is for use by an attendant of the facility, not a customer. Thus, in the disclosed systems there is no provision for a customer to select from a menu of services and to input an order for a variety of different requested services, reflecting a variety of different items the customer drops off (or picks up) at the facility.

Further, the systems disclosed in the prior patents did not take advantage of computer networking for the transfer of information relating to orders and transaction records generated at a number of remote facilities, for communicating information to a central plant. In fact, the prior systems did not include the generation of a transaction record, identified by a transaction number (or other unique identification) for each order taken from a customer, with each transaction record being useful for (a) providing a confirmation or temporary receipt for a customer, through the printer, (b) providing a customer order record for receipt by the central plant, for verification against the actual items deposited by the customer, the record being communicable to the central plant either by a printed receipt transported to the plant by a route driver picking up orders or by modem transmission from the automated facility to the central plant, or both, and (c) for storing in memory for reference when the customer returns to pick up a processed order.

In summary, previous systems which have attempted any form of automation in providing customer services efficiently through a series of remote and substantially unattended facilities have not included key elements which form a part of the present invention, and without these key elements the prior systems did not have the capability of functioning as a reliable attendant-free customer interface for retail services, generally in the manner of an automated teller machine.

SUMMARY OF THE INVENTION

It is an object of the present invention to integrate a number of features and concepts to greatly extend the range of customer interfacing and automated provision of retail services as compared to previous systems such as those disclosed in the cited British patents.

In accordance with the present invention a general purpose computer is used to augment the interface between a card reader and a garment retrieval device (or other processed order retrieval or rental item retrieval). The system of the invention is activated by any non-dedicated, general purpose credit card (such as MasterCard or Visa), from any customer whether or not the customer has ever used the system previously. This makes the system adaptable to a wide variety of retail services, not restricted to a group or club holding dedicated cards controlled by the system and solely for this system, and requires no previous registration with the system. It enables the identification of an order by the customer's credit card data (usually contained in a magnetic strip on the credit card), and it enables debiting of the customer's account. It also enables automated verification of credit, or validation of the credit card, prior to the rendering of services.

The invention also involves creation of a transaction record for each transaction taking place at each automated customer interface machine facility. The transaction records are important for tracking of orders and computer processing of orders, as well as for producing customer receipts and customer input records for the central plant and for compiling daily transaction lists and permanent statistical records for each remote automated facility organized as desired.

The use of a general purpose computer is a very important aspect of the invention. The computer is networked with a central computer at the central processing plant; it takes information from the credit card reader to find a processed order or to take a new order; it interacts with the processed order retrieval device; it